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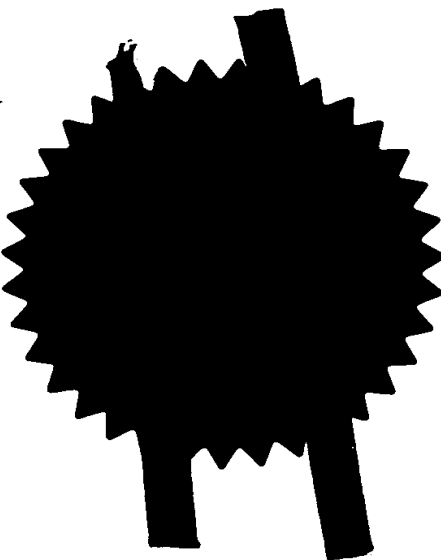
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4

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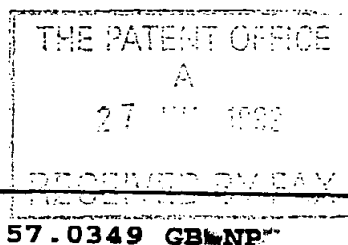
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10 AUG 2000

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27JUL99 E464999-1 D02831
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1. Your reference

2. Patent application number

*(The Patent Office will fill in this part)***9917554.9**

27 JUL 1999

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Schlumberger Holdings Limited

P.O. Box 71, Craigmuir Chambers
Road Town

Tortola

British Virgin Islands 7236326001

Patents ADP number *(if you know it)*

If the applicant is a corporate body, give the country/state of its incorporation

British Virgin Islands

4. Title of the invention

Publishing System for Intranet

5. Name of your agent *(if you have one)*

MIRZA, Akram Karim

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*c/o Schlumberger Cambridge Research Ltd
High Cross, Madingley Road
Cambridge
CB3 0ELPatents ADP number *(if you know it)*

6974299001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country

Priority application number
*(if you know it)*Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier applications

Date of filing
*(day / month / year)*8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

YES

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, orc) any named applicant is a corporate body.
See note (d)

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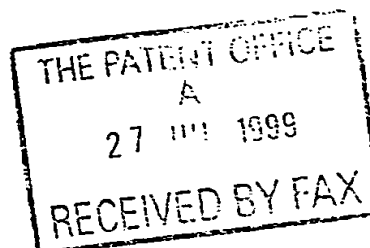
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Page 02

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Continuation sheets of this form -
Description 11
Claim(s) 1
Abstract -
Drawing(s) 7



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Priority documents -
Translations of priority documents -
Statement of inventorship and right to grant of a patent (Patents Form 7/77) -
Request for preliminary examination and search (Patents Form 9/77) 1
Request for substantive examination (Patents Form 10/77) 1
Any other documents -
(please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature

Date

27 July 1999

12. Name and daytime telephone number of person to contact in the United Kingdom MIRZA, Akram Karim 01223-325268

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Patents Form 1/77

Project Workspace Technology Handout

Authentication Products Publishing Site Structure Technology

This handout describes the technology used in the construction of the Project Workspace. The Design Goals of the Project Workspace are described here. There are a number of components that combine to provide the total service.

- Site Structure constructed using XML
- Publishing via Netscape Publisher
- Authentication via LDAP

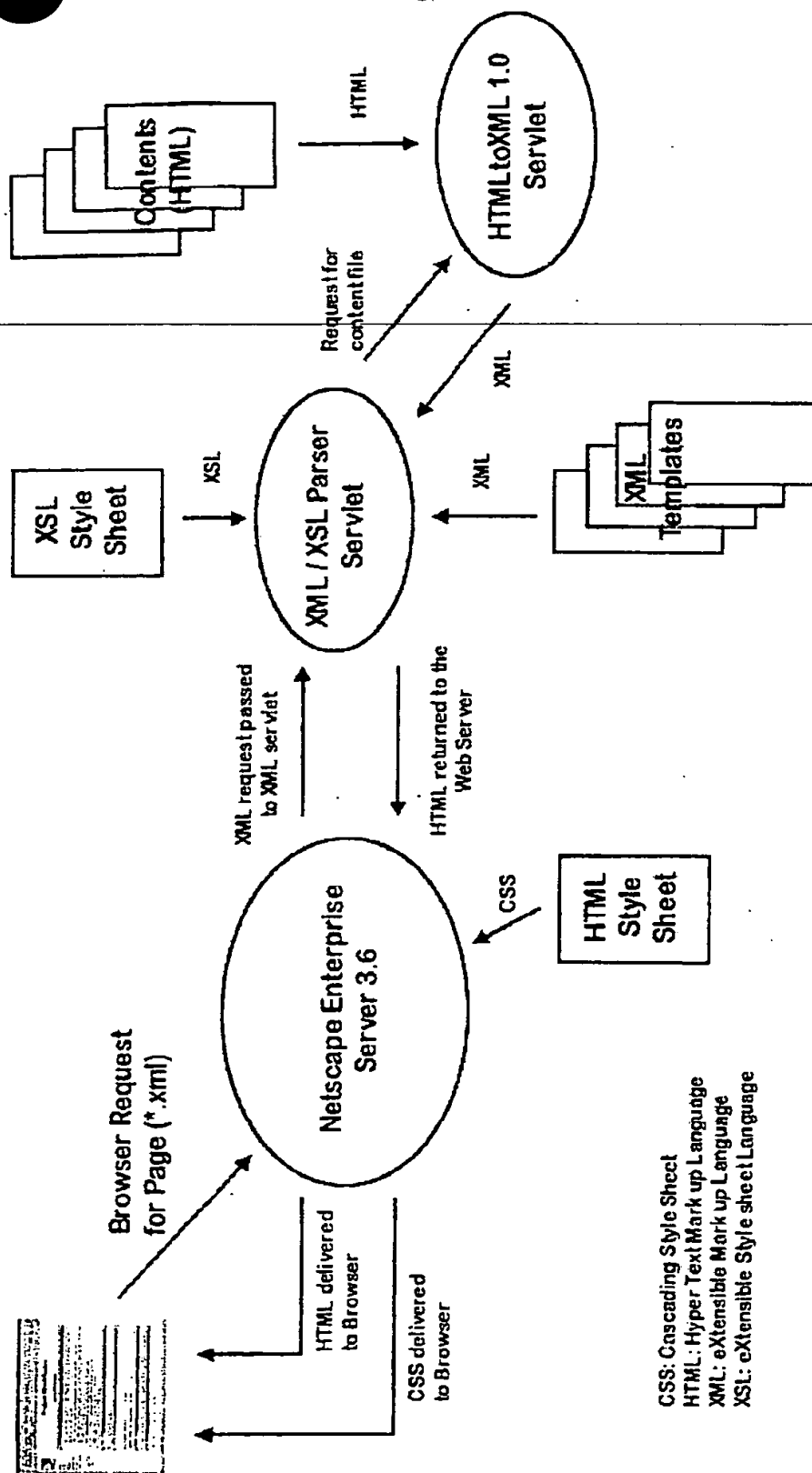
The site is constructed using a number of Products to deliver specific Functionality via selected Technologies.

Site Structure

The Project Workspace web site has a structure that is constructed out of XML templates using XSL style sheets. The following diagram shows how the different server is configured to build the web pages.

1/7

http://www.cambridge.org/eth/online/Products/Products.htm



Publishing

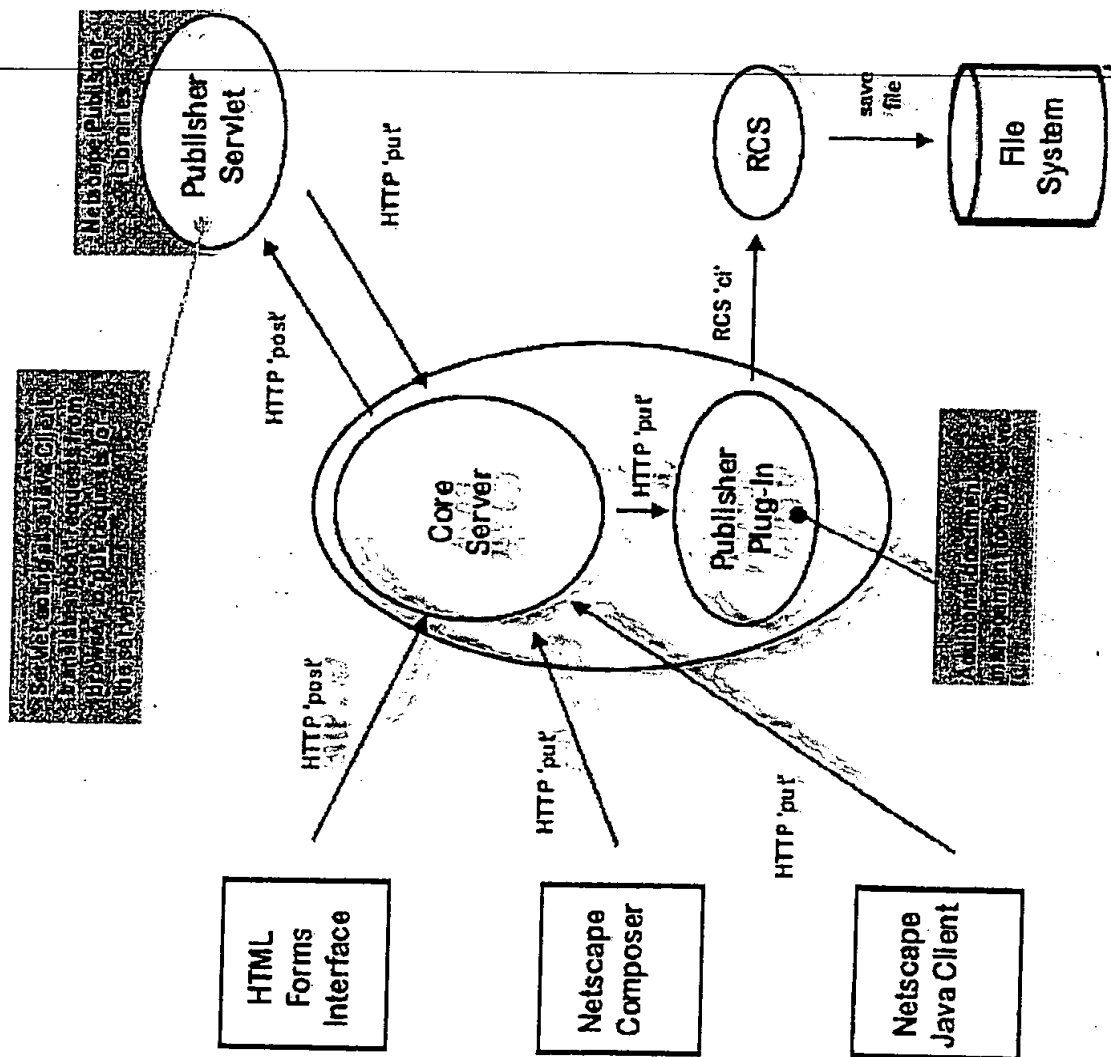
The following diagram shows how the publish actions from the three possible interfaces are handled by the Server. The interfaces are:

1. Publishing from within Netscape Composer
2. Bespoke form Interface
3. Netscape Java Client

3/77

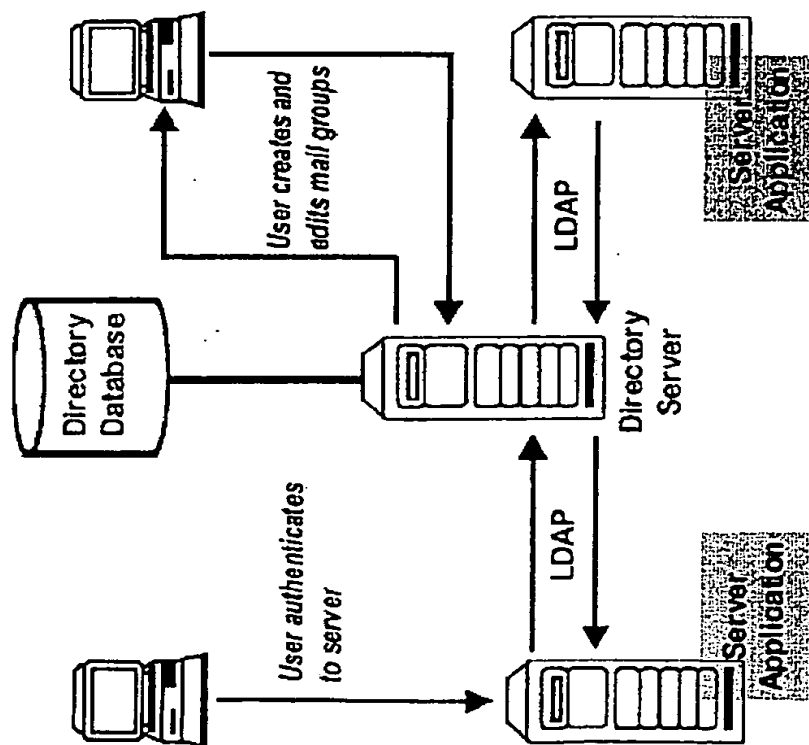
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Authentication

LDAP Client and Server Interaction



Servers obtain configuration and authentication information from directory server.

Technology

Various technologies have been used to create the Project Workspace. The 4 main technologies are described here.

XML

XMLTM is the 'Extensible Mark-up Language' (extensible because it is not a fixed format like HTML) and is a data format for structured document interchange

The user authentication is via the Corporate LDAP directory server.

Each project has groups defined in the LDAP directory and the Netscape Enterprise Server ACL (Access Control List) lists for read and write access. When a user accesses the web site the Netscape Enterprise Server authenticates the user against the LDAP directory and then uses the ACL to decide what access rights the user has.

Each project has a bulletin board associated with it and the membership of this bulletin board is controlled via the LDAP services.

Each LDAP group has an owner and this is defined as the project manager. The project manager, via a forms interface, can control the membership of the groups and so the access to their project.

on the Web. It is designed to enable the use of XML on the World Wide Web. XML allows the designer to build sites that bring information together from several sources.

XML has many features that allow to tasks involved with the Project Workspace to be automated. One example will be the display of the highlights section. These highlights are used in a few places but different views of them are needed. On the front page for example only the last months highlights need to be displayed. All the monthly highlights for the project can now be combined in another page, giving a combined highlights page.

Each page has an XML template. This template defines the content that builds the page. This template contains links to the other documents, page titles and other information that is needed to build the page. The content in the template is 'wrapped' in XML tags and these are then matched with an XSL styles sheet. The XML files do not contain any HTML, all the HTML is in the XSL template file.

For further information see XML.

XSL

Extensible Stylesheet Language (XSL) is a language for expressing stylesheets. It consists of two parts:

1. a language for transforming XML documents, and
2. an XML vocabulary for specifying formatting semantics.

An XSL stylesheet specifies the presentation of a class of XML documents by describing how an instance of the class is transformed into an XML document that uses the formatting vocabulary.

For background information on style sheets, see the W3C Web style sheets resource page. Discussions about XSL are carried out on the XSL-List at mulberrytech.com and on comp.infosystems.www.authoring.stylesheets.

HTTP

Using the 'put' command in the HTTP protocol has a number of advantages over FTP.

1. The address of the file is as shown in the URL, this is not the same as the host machines directory structure which is what is needed to be know for FTP.
2. It allows applications to integrate more closely into a recognised work flow.
3. It is handled by the Netscape Publisher Plug-In that also has document management facilities.

Servlets

The servlet API is a generic extension mechanism for Web servers in the same way that the CGI interface was intended to be. It only supports Java however, which marks it out in this sense from CGI.

We are using servlet technology for the Project Workspace. This includes integration with LDAP for group and mailing list management (using Sun's JNDI), dynamic generation of HTML using XML and XSL, and content management (using the Netscape Web Publisher Java client library).

For more information see Why Java Servlets?

LDAP

LDAP (Lightweight Directory Access Protocol) is a specification for a client-server protocol to retrieve and manage directory information. It was originally intended as a means for clients on PCs to access X.500 directories, but can also be used with any other directory system which follows the X.500 data models.

LDAP should ease communications over the internet, as it will provide a simple means to locate individuals (either within a Schlumberger, or globally on the Internet), while also enabling people's identity to be validated (via their public key certificate, which will be stored on the LDAP server).

The University of Michigan provides a useful overview of the protocol.

On April 22, 1996, an industry initiative announced that more than 40 companies will support LDAP as an access protocol to directory services via TCP/IP. The initiative includes vendors like IBM/Lotus, Netscape, Novell, OnTime, Sunsoft, and providers like AT&T and GEIS. Microsoft also has announced its support for LDAP.

A good introduction to LDAP:

LDAP: The next-generation directory

<http://www.sun.com/sunworldonline/swol-10-1996/swol-10-ldap.html>

Products

- Netscape:

- o Enterprise server 3.5 - Web server
- o Directory server 3.1 - LDAP server
- o Collabra server 3.5 - NNTP server

Can be used (optionally) for mail archiving

- o Netscape Communicator 4.* - Web browser
- Preferred browser because of integrated editing functionality.*

- Live Software:

- o JRun 2.2 - Java servlet runner

Not strictly needed - as Java Servlets are supported by Netscape Enterprise Server. However, provides better performance and standards support.

Free version available, for development and evaluation purposes.

- Public domain:

- o MHonArc 2.2.0 - mail to HTML converter

free from <http://www.oac.uci.edu/indiv/ehood/mhonarc.html>

- o Perl 5.005 - scripting language (needed for MHonArc)

free from <http://www.perl.org/>

- o JVM 1.2.1 - Java Virtual Machine

free from <http://java.sun.com/>

- o xml4j 1.1.9 - XML parser

free from <http://www.alphaworks.ibm.com/formula/XML>

- o LotusXSL 0.15c - XSL processor

free from <http://www.alphaworks.com/formula/LotusXSL>

- Schlumberger Cambridge Research© developed servlets:
 - o HTMLtoXMLServlet 1.0
Java servlet creates valid XML from HTML files
 - o LDAPServlet 1.0
Java servlet handles requests to LDAP server
 - o Publisher 1.0
Java servlet to handle HTTP 'post' and commands to 'put' for publishing
 - o XMLEnabler 1.0
Java servlet processes XML and XSL files to create HTML output

Product and company names mentioned herein are the trademarks of their respective owners.

Publishing System for Intranet

Introduction

The primary purpose of the requirements document is to define the project requirements, stating goals, capabilities and characteristics of a product/component. It is the repository of all of the requirements collected and is used as an input to the specification for the product/component.

The specification document specifies which requirements shall and shall not be met — namely, what shall be delivered.

Many of the requirements will reflect and comment on the current design.

Statement of Project Goals

The Project Workspace will provide scientists with a 'working' tool for project groups to communicate and share information (results, data, email, meeting-notes, reports, findings, conclusions, discussion summaries). The focus will be on 'work-in-progress' i.e. a live, working tool that helps scientists and other participants to interact. This is a central part of each project. The recording and archiving function will come from this.

The Project Workspace shall be a central store where people get essential information such as: project summary, people, reports.

User Profile

There are two primary users:

Scientists, internally within each project, using it as a working tool, at multiple locations, plus managers and correspondents. They will be entering, updating, organising and viewing information.

Anyone outside the project who wants to access the information, provided they're authorised to do so. This is the publishing, publicising and information dissemination aspect of the system.

Constraints

The users outside the project shall primarily access the system through a Web browser. The Project Workspace shall support IE and Netscape browsers, versions 3 and 4.

Any security system must work on a basis of pre-authorised access.

The file system used to hold the Project Workspace data shall be a UNIX Solaris Server.

The Netscape Suitespot server shall be the Web Server. The primary HTML publishing tool is Netscape Web Publishing.

The security and access control shall be based on LDAP.

Product/Component Perspective

The Project Workspace shall interact with a number of other systems and products that are already used by the users in the course of their jobs.

These products shall include:

Microsoft Office 95

MatLab

E-mail, Eudora 4 and Microsoft Outlook 98

The systems include:

Back up systems

LDAP personnel directory

Company Web Site

Content shall exist in many formats within the Project Workspace., The solution shall handle the following:

Picture Files:

JPEG, GIF, TIFF

Microsoft Office Files:

Word, Excel, PowerPoint,

Web pages:

HTML,

MatLab

Encapsulated Postscript.

Functional Requirements

There is already a project archive facility in operation. Many of the qualities of the requirements in this section are based on existing designs.

Site Structure

Standard Format and Layout

The standard structure helps visitors to a project find their way around the site. A visitor shall be able to reach all the important content with just two mouse-clicks.

The standard left hand menu shall include:

home

plan

slides

documents

people

previous news

discussion / email lists

<user defined>

The project team shall be able to remove any unwanted items from left hand menu.

The current concept of the Activities section, of having menu items added by the project group shall be kept.

Archive structure and page layout shall be kept simple, to make it as easy as possible to enter and maintain. Must have as flat a structure as possible and the titles of the standard sections must make sense to majority of users.

The design of the home page shall be appealing to the users.

There shall be templates in html for the standard sections.

Home Page

The Home page shall contain the following content:

Latest News, includes the current News, Highlights and Milestone sections.

A link to the Product Development Process and to Risk Analysis.

A detailed project description.

Project objectives.

The Home page shall contain information targeted at the general user. The links from the Home page shall access the sections that the scientific user shall find useful.

There shall be controlled access to the home page for editing.

People Section

This section shall reference information about individuals associated with the project. Typically, this shall include the individuals Home page when available or their Schlumberger Directory entry..

There shall be sections for team members and co-respondents. Where the co-respondents is an external company or person the People Section shall point to the contact details.

News Archive Section

Previous monthly reports shall be archived for easy reference.

Documents Section

This section shall include all written information? that is produced by the project. It shall be accessible from the home page.

Discussion / Email Lists Section

This section shall provide access to an archive of email / discussion lists for the project.

The email archive shall support formatted messages (styled text) and MIME attachments.

The users shall be able to create and delete email / discussion lists as required.

Email lists may have a distribution list associated with them or may solely be provided for the purpose of archiving email.

<user defined>

The user shall be able to define additional sections as they are needed by the project.

Publications Section

There shall be a facility that shall auto generate the current publications from submissions to the library. This shall produce a web page that can be included in the Project Workspace.

E-mail

There shall be a facility to submit documents to Project Workspace via e-mail. These attachments shall be able to be filed in the correct location of the archive.

Ease of Publishing

The archive shall be quick and easy to edit and update. The user shall not need to understand HTML, the editing of the Web site pages shall be done via a WYSIWYG editor.

There shall be more than one means of publishing to the Project Workspace.

A forms-interface shall be provided for entering and editing a limited set items (i.e. the standard items for all projects) on the web site.

When documents are being added to the Project Workspace the users shall be prompted for additional meta data.

The user shall not need to take any further action after publishing to the Project Workspace for the web site to be updated.

Drag and Drop

Desktop platforms support the moving and copying of files via a "Drag and Drop" procedure.

Users on such desktops shall be able to use this facility to publish to the Project Workspace.

Microsoft Office Documents

A significant number of users use Microsoft Office products as their main creation and editing tool. It shall be easy to publish to the Project Workspace from these products.

Presentations published to the Project Workspace in Microsoft Powerpoint shall automatically have an HTML version made).

Publishing via E-mail

The user shall be able to publish to the Project Workspace via email

Search Engine

There shall be a search facility on the archive pages. The user shallUsers shall be able to search only the Project Workspace that they are currently browsing.

The search engine shall index all files that have a textual content, e.g. pdfPDF, text, htmlHTML, MS Microsoft Office.

An advanced search facility shall be available. This shall search against other meta data.

Usage Indicators

There shall be an automatically generated "what's new" function, This shall list what has been added to the archive in a given timeframe.

Access log analysis tools shall allow users to report on the usage of the Project Workspace down to the level of individual pages.

Lab Book Work Style

The Project Workspace shall provide an easy way of capturing Laboratory Notes and Data.

Equations

The Project Workspace shall provide a facility for publishing mathematical equations in a convenient and readily used format.

Version Control

Any required version control system shall not be discernible to the user.

Editors

The Project Workspace shall work well with at least one widely available WYSIWYG HTML editor.

The most popular candidates are: Microsoft FrontPage, Netscape Composer, SoftQuad HoTMetaL

Work In Progress

There is a significant amount of concern about work in progress being seen by those outside the project team. The current project archive does not allow for easy classification of that material.

There shall be a way of publishing 'work in progress' that is available to a group defined by the author.

Miscellaneous

If the Project Workspace is used as the main store for the projects documentation then there shall be a solution for people who are offsite.

The Project Workspace shall be easy to implement for projects that are already in progress.

The Project Workspace shall be publicised so that the members of each projects know and understand what to find there.

General Performance Criteria

Any routine administration shall be automatic.

The Project Workspace shall be sited on Schlumberger Intranet and this shall provide the bandwidth need for the facility.

It is expected that the desktops already deployed to the users shall provide an adequate platform for the browsers.

Non-Requirements

A number of comments made during the interviews have not been addressed in this requirements document. This section contains an unedited list of comments in the various categories so that anyone who feels they shall be requirements can easily identify them.

Site Structure

Discussion-groups are important.

News and updates shall be removed. An automatically generated section like this may have little use.

Summary etc shall be made obligatory.

Diary Section

A diary section shall not be provided in this version of the Project Workspace.

E-mail

It would be great if emails could then be dragged and dropped from the users email application to the archive no matter on which email package they use (Eudora, Outlook Express).

The user shall be able to forward an email to a list to archive it. This is a simpler and more widely supported option.

Safety and Security

In reality the way scientific groups need to view the information is much different to the way managers and reader need the information. Is there a way we could set out the same info in differing views targeted at the reader?

Work In Progress

It shall NOT be a project workspace.

International Use

The language of the Project Workspace shall be English. There shall not be any special international facilities.

Requirements for Testing

The Project Workspace shall be tested before general release. Initial versions shall be implemented by the Project Workspace team and used as such.

Safety and Security

Access to the Project Workspaces shall be controlled on a per user and per group basis for each project

It shall be possible to view the people with access to an individual Project Workspace.

There shall be a defined policy and procedure for deciding who has access.

The program leader of each project shall be able to add and delete users and groups from the project access list.

No users shall have automatic rights to all Project Workspace.

Areas of the Project Workspace shall be designated Company only

A pointer to protected documents shall be displayed to non-authorised people doing searches.

However, access to the protected document shall be denied

Documentation & Other Support

There shall be Help pages for each function and standard page in the Project Workspace. These help pages shall be user friendly.

There shall be a user question / feedback facility within the web site.

A training shall be developed for new users.

Claims

1. A method of publishing information on a network-based computer system comprising the steps of:

- providing unstructured input data to a HTML-to-XML converter;
- providing XML files containing said unstructured data to a XML/XSL Parser linked to repositories;
- generating an HTML formatted file based on the unstructured input combined with selected XSL style sheet and/or XML Template
- publishing on request the HTML file on a network server.

2. The method of Claim 1 wherein the XML/XSL Parser provides the server with the generated HTML file.

3. The method of claim 1 or 2 wherein the unstructured input consist of HTML compatible data types including Text, Tables, Video, Graphics, Sound.

4. The method of any of the preceding claims, wherein the XSL style sheets and XML templates are used to define the format, look & feel, and structuring of the published files.

5. The method of any of the preceding claims, further comprising the steps of controlling the access to the network-based computer system using LDAP to define and limit the rights of authors and readers within the network.